

## CLAIMS

1. A medical device adapted to be implanted in the heart of a patient and operable therein i) as a heart valve; or ii) to assist in the functioning of one of the patient's heart valves; or iii) to monitor the functioning of one of the patient's heart valves; the medical device comprising:
  - at least one sensor for sensing a physiologically or clinically relevant parameter of the patient; and
  - telemetric communication means for telemetrically transmitting data related to the parameter sensed by the sensor to a remote device.
2. The medical device according to claim, 1 wherein the medical device comprises a heart valve for regulating the flow of blood through the medical device.
3. The medical device according to claim 1 wherein the telemetric communication means comprises a passive device adapted to be powered by energy transmitted by the remote device.
4. The medical device according to claim 3 wherein the telemetric communication means comprises a transponder.
5. The medical device according to claim 4 wherein the telemetric communication means comprises an RF tag device.
6. The medical device according to claim 3 wherein the telemetric communication means is powered by an RF field.
7. The medical device according to claim 1 wherein the telemetric communication means transmits data using an RF field,

8. The medical device according to claim 1 wherein the telemetric communication means comprises an integrated circuit.
9. The medical device according to claim 1 wherein the sensor senses blood pressure of the patient.
10. The medical device according to claim 9 wherein said at least one sensor comprises at least two spaced apart sensors for sensing blood pressure at different locations in the heart of the patient.
11. The medical device according to claim 10 wherein the telemetric communication means telemetrically transmits data related to the difference in the blood pressures sensed by the at least two spaced apart sensors.
12. The medical device according to claim 1 wherein the sensor senses acoustic signals.
13. The medical device according to claim 12 wherein the said at least one sensor senses blood pressure and acoustic signals.
14. The medical device according to claim, 13 wherein said at least one sensor comprises a single sensor that senses both blood pressure and acoustic signals.
15. The medical device according to claim 1 wherein the sensor comprises a passive sensor.
16. The medical device according to claim 1 wherein the sensor comprises a piezoelectric sensor,
17. The medical device according to claim 16 wherein the piezoelectric sensor comprises a polymeric active sensing area.

18. The medical device according to claim 17 wherein the polymeric active sensing area comprises PVDF.

19. The medical device according to claim 1 wherein the medical device comprises a tissue valve device having a valve wall formed from tissue.

20. The medical device according to claim 19 further comprising a stent support for the valve wall, and wherein the sensor and the telemetric communication means are disposed between the stent support and the valve wall.

21. The medical device according to claim 19 wherein the medical device is stentless.

22. The medical device according to claim 19 further comprising a protective cover disposed around the periphery of the medical device, and wherein the sensor and the telemetric communication means are disposed between the valve wall and the protective cover.

23. The medical device according to claim 1 wherein the medical device comprises a mechanical heart valve.

24. A system for monitoring a patient comprising:

at least one sensor for sensing a physiologically or clinically relevant parameter of a patient;

telemetric communication means for telemetrically transmitting data related to the parameter sensed by the sensor; and

a remote device for receiving the data telemetrically transmitted by the telemetric communication means.

25. The system according to claim 24 wherein the remote device provides power remotely to the telemetric communication means.
26. The system according to claim 24 wherein the remote device comprises a memory unit for storing data transmitted by the telemetric communication means.
27. The system according to claim 24 wherein the remote device comprises data analysis means for performing a physiologically relevant analysis of data transmitted by the telemetric communication means.
28. The system according to claim 24 wherein the remote device comprises data transmission means.
29. The system according to claim 24 further comprising a data storage device which is separate to the remote device, and wherein the remote device comprises means to write data on the data storage device.
30. The system according to claim 29 wherein the data storage device comprises a card having a magnetic data storage area, a DVD, a CD or another disc storage medium.